

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-16 (canceled)

Claim 17 (currently amended): ~~The loading system according to claim 14 wherein~~ A loading system for loading an elongated strand of food product of a given diameter on a transport conveyor, comprising a first loading conveyor extending along a forward travel direction from an upstream entrance end to a downstream exit end, a second loading
5 conveyor spaced above said first loading conveyor by a gap having a dimension less than or equal to said given diameter such that said strand is frictionally engaged by both of said first and second loading conveyors to pull said strand into said gap and such that said strand is conveyed from said upstream entrance end to said downstream exit end by an indexed drive and discharged at said downstream exit end to said transport conveyor, wherein said second
10 loading conveyor extends along said forward travel direction from an upstream end to a downstream end, and said upstream end of said second loading conveyor is spaced upstream of said upstream entrance end of said first loading conveyor.

Claim 18 (currently amended): ~~The loading system according to claim 14 wherein~~ A loading system for loading an elongated strand of food product of a given diameter on a transport conveyor, comprising a first loading conveyor extending along a forward travel direction from an upstream entrance end to a downstream exit end, a second loading
5 conveyor spaced above said first loading conveyor by a gap having a dimension less than or equal to said given diameter such that said strand is frictionally engaged by both of said first and second loading conveyors to pull said strand into said gap and such that said strand is conveyed from said upstream entrance end to said downstream exit end by an indexed drive and discharged at said downstream exit end to said transport conveyor, wherein said second
10 loading conveyor extends along said forward travel direction from an upstream end to a

downstream end, and said each of said upstream and downstream ends of said second loading conveyor is spaced upstream of each of respective said upstream and downstream ends of said first loading conveyor.

Claim 19 (original): The loading system according to claim 18 wherein said upstream end of said second loading conveyor is spaced rearwardly of said upstream end of said first loading conveyor by a first offset distance, and said downstream end of said second loading conveyor is spaced rearwardly of said downstream end of said first loading conveyor by a
5 second offset distance, and wherein said second offset distance is greater than said first offset distance.

Claim 20 (canceled)

Claim 21 (currently amended): ~~The loading system according to claim 20~~ A loading system for loading an elongated strand of food product of a given diameter on a transport conveyor, comprising a first loading conveyor extending along a forward travel direction from an upstream entrance end to a downstream exit end, a second loading conveyor spaced above
5 said first loading conveyor by a gap having a dimension less than or equal to said given diameter such that said strand is frictionally engaged by both of said first and second loading conveyors to pull said strand into said gap and such that said strand is conveyed from said upstream entrance end to said downstream exit end by an indexed drive and discharged at
10 said downstream exit end to said transport conveyor, and comprising an entrance guide spaced upstream of said gap and guiding said strand into said gap, wherein said entrance guide comprises an idle roller spaced rearwardly and downwardly of said upstream end of said first loading conveyor, wherein said strand extends upwardly to said idle roller and then upwardly and forwardly to said upstream end of said first loading conveyor.

Claims 22-23 (canceled)

Claim 24 (currently amended): ~~The loading system according to claim 22~~ A loading system for loading an elongated strand of food product of a given diameter on a transport conveyor, comprising a first loading conveyor extending along a forward travel direction from an upstream entrance end to a downstream exit end, a second loading conveyor spaced above
5 said first loading conveyor by a gap having a dimension less than or equal to said given diameter such that said strand is frictionally engaged by both of said first and second loading conveyors to pull said strand into said gap and such that said strand is conveyed from said upstream entrance end to said downstream exit end by an indexed drive and discharged at said downstream exit end to said transport conveyor, and comprising an entrance guide
10 spaced upstream of said gap and guiding said strand into said gap, wherein said entrance guide is accessible to an operator at an operator loading station, and wherein said first and second loading conveyors comprise respective first and second upstream rotary conveyor pulleys, and comprising a faceplate blocking access to said rotary conveyor pulleys from said operator loading station, and wherein said entrance guide comprises an inlet through
15 said faceplate, and wherein said second rotary conveyor pulley is rearward of said first rotary conveyor pulley, and said inlet is rearward of said first rotary conveyor pulley and below said second rotary conveyor pulley.

Claim 25 (original): The loading system according to claim 24 wherein said entrance guide further comprises an idle roller spaced rearwardly and downwardly of said inlet, wherein said strand extends upwardly to said idle roller and then upwardly and forwardly to said inlet and then forwardly to said upstream end of said first loading conveyor.

Claim 26 (currently amended): ~~The loading system according to claim 20~~ A loading system for loading an elongated strand of food product of a given diameter on a transport conveyor, comprising a first loading conveyor extending along a forward travel direction from an upstream entrance end to a downstream exit end, a second loading conveyor spaced above
5 said first loading conveyor by a gap having a dimension less than or equal to said given diameter such that said strand is frictionally engaged by both of said first and second loading

conveyors to pull said strand into said gap and such that said strand is conveyed from said upstream entrance end to said downstream exit end by an indexed drive and discharged at said downstream exit end to said transport conveyor, and comprising an entrance guide spaced upstream of said gap and guiding said strand into said gap, wherein said entrance guide comprises the combination of an inlet cone spaced rearwardly of said upstream end of said first loading conveyor and an idle roller spaced rearwardly and downwardly of said inlet cone, wherein said strand extends upwardly to said idle roller and then upwardly and forwardly to said inlet cone and then forwardly to upstream end of said first loading conveyor.

Claims 27-31 (canceled)

Claim 32 (currently amended): ~~The loading system according to claim 31~~ A loading system for loading an elongated strand of food product of a given diameter on a transport conveyor, comprising a first loading conveyor extending along a forward travel direction from an upstream entrance end to a downstream exit end, a second loading conveyor spaced above said first loading conveyor by a gap having a dimension less than or equal to said given diameter such that said strand is frictionally engaged by both of said first and second loading conveyors to pull said strand into said gap and such that said strand is conveyed from said upstream entrance end to said downstream exit end by an indexed drive and discharged at said downstream exit end to said transport conveyor, wherein said first and second loading conveyors comprise respective first and second upstream rotary drive pulleys each driven by a motor, wherein the same said motor drives both of said first and second drive pulleys, wherein said motor drives said first and second pulleys at the same rotational speed and in opposite rotational directions, wherein said first drive pulley comprises a first driven gear on a first shaft rotational about a first axis, said second drive pulley comprises a second driven gear on a second shaft rotational about a second axis, and comprising a motor having an output drive shaft rotating about a third axis and having a drive gear on said drive shaft engaging at least one of said first and second driven gears, and wherein said drive gear

comprises a worm gear extending between and engaging each of said first and second driven gears on distally opposite sides of said worm gear.

Claim 33 (canceled)

Claim 34 (currently amended): ~~The loading system according to claim 33~~ A loading system for loading an elongated strand of food product of a given diameter on a transport conveyor, comprising a first loading conveyor extending along a forward travel direction from an upstream entrance end to a downstream exit end, a second loading conveyor spaced above
5 said first loading conveyor by a gap having a dimension less than or equal to said given diameter such that said strand is frictionally engaged by both of said first and second loading conveyors to pull said strand into said gap and such that said strand is conveyed from said upstream entrance end to said downstream exit end by an indexed drive and discharged at said downstream exit end to said transport conveyor, wherein said first and second loading
10 conveyors comprise respective first and second upstream rotary drive pulleys each driven by a motor, wherein the same said motor drives both of said first and second drive pulleys, wherein said motor drives said first and second pulleys at the same rotational speed and in opposite rotational directions, wherein said first drive pulley comprises a first driven gear on a first shaft rotational about a first axis, said second drive pulley comprises a second driven
15 gear on a second shaft rotational about a second axis, and comprising a motor having an output drive shaft rotating about a third axis and having a drive gear on said drive shaft engaging at least one of said first and second driven gears, wherein said first and second axes extend parallel to each other and transversely to said forward travel direction, and said third axis extends transversely to said first and second axes, and
20 wherein said third axis extends obliquely relative to said forward travel direction.

Claim 35 (currently amended): ~~The loading system according to claim 31~~ A loading system for loading an elongated strand of food product of a given diameter on a transport conveyor, comprising a first loading conveyor extending along a forward travel direction from an

upstream entrance end to a downstream exit end, a second loading conveyor spaced above
5 said first loading conveyor by a gap having a dimension less than or equal to said given
diameter such that said strand is frictionally engaged by both of said first and second loading
conveyors to pull said strand into said gap and such that said strand is conveyed from said
upstream entrance end to said downstream exit end by an indexed drive and discharged at
said downstream exit end to said transport conveyor, wherein said first and second loading
10 conveyors comprise respective first and second upstream rotary drive pulleys each driven by
a motor, wherein the same said motor drives both of said first and second drive pulleys,
wherein said motor drives said first and second pulleys at the same rotational speed and in
opposite rotational directions, wherein said first drive pulley comprises a first driven gear on
a first shaft rotational about a first axis, said second drive pulley comprises a second driven
15 gear on a second shaft rotational about a second axis, and comprising a motor having an
output drive shaft rotating about a third axis and having a drive gear on said drive shaft
engaging at least one of said first and second driven gears, and wherein said first and second
axes are spaced along a projection line extending transversely therebetween, and wherein
said third axis intersects intercepts-said projection line.

Claim 36 (currently amended): The loading system according to claim 35 wherein said third
axis transversely intersects intercepts-said projection line.

Claim 37 (currently amended): The loading system according to claim 36 wherein said third
axis transversely intersects intercepts-said projection line at a point between said first and
second driven gears.

Claims 38-39 (canceled)

Claim 40 (currently amended): ~~The loading system according to claim 39~~ A loading system
for loading an elongated strand of food product of a given diameter on a transport conveyor,
comprising a first loading conveyor extending along a forward travel direction from an

upstream entrance end to a downstream exit end, a second loading conveyor spaced above
5 said first loading conveyor by a gap having a dimension less than or equal to said given
diameter such that said strand is frictionally engaged by both of said first and second loading
conveyors to pull said strand into said gap and such that said strand is conveyed from said
upstream entrance end to said downstream exit end by an indexed drive and discharged at
said downstream exit end to said transport conveyor., wherein said first and second loading
10 conveyors comprise respective first and second upstream rotary drive pulleys each driven by
a motor, wherein the same said motor drives both of said first and second drive pulleys,
wherein said motor drives said first and second pulleys at the same rotational speed and in
opposite rotational directions, wherein said first drive pulley comprises a first driven gear on
a first shaft rotational about a first axis, said second drive pulley comprises a second driven
15 gear on a second shaft rotational about a second axis, and comprising a motor having an
output drive shaft rotating about a third axis and having a drive gear on said drive shaft
engaging at least one of said first and second driven gears, wherein said first and second
axes extend parallel to each other and transversely to said forward travel direction and are
spaced along a projection line extending transversely therebetween and obliquely relative to
20 said forward travel direction, wherein said third axis extends obliquely relative to said
forward travel direction, and wherein said projection line extends obliquely upwardly and
rearwardly, and said third axis extends obliquely upwardly and forwardly.

Claim 41 (original): The loading system according to claim 40 wherein said projection line
and said third axis intersect each other.

Claim 42 (original): The loading system according to claim 40 wherein said projection line
and said third axis are transverse to each other.

Claims 43-46 (canceled)

Claim 47 (currently amended): ~~The loading system according to claim 46~~ A loading system for loading an elongated strand of food product of a given diameter on a transport conveyor, comprising a first loading conveyor extending along a forward travel direction from an upstream entrance end to a downstream exit end, a second loading conveyor spaced above
5 said first loading conveyor by a gap having a dimension less than or equal to said given diameter such that said strand is frictionally engaged by both of said first and second loading conveyors to pull said strand into said gap and such that said strand is conveyed from said upstream entrance end to said downstream exit end by an indexed drive and discharged at
10 said downstream exit end to said transport conveyor, wherein said second loading conveyor extends along said forward travel direction from an upstream end to a downstream end, wherein said first and second loading conveyors comprise respective first and second conveyor belts, and comprising a roller cam engaging one of said belts at a location between said upstream and downstream ends, said roller cam being adjustably movable toward and away from the other of said belts to control said dimension of said gap, wherein said second
15 conveyor belt has a bottom side facing downwardly and engaging said strand of said food product, and has a top side facing upwardly, and wherein said roller cam engages said top side of said second conveyor belt above said gap, and wherein said first and second loading conveyors comprise respective first and second upstream rotary pulleys, said second pulley being spaced rearwardly and upwardly from said first pulley, and wherein said roller cam is
20 forward of said second pulley.

Claim 48 (currently amended): ~~The loading system according to claim 47~~ A loading system for loading an elongated strand of food product of a given diameter on a transport conveyor, comprising a first loading conveyor extending along a forward travel direction from an upstream entrance end to a downstream exit end, a second loading conveyor spaced above
5 said first loading conveyor by a gap having a dimension less than or equal to said given diameter such that said strand is frictionally engaged by both of said first and second loading conveyors to pull said strand into said gap and such that said strand is conveyed from said upstream entrance end to said downstream exit end by an indexed drive and discharged at

10 said downstream exit end to said transport conveyor, wherein said second loading conveyor
extends along said forward travel direction from an upstream end to a downstream end,
wherein said first and second loading conveyors comprise respective first and second
conveyor belts, and comprising a roller cam engaging one of said belts at a location between
said upstream and downstream ends, said roller cam being adjustably movable toward and
15 away from the other of said belts to control said dimension of said gap, wherein said second
conveyor belt has a bottom side facing downwardly and engaging said strand of said food
product, and has a top side facing upwardly, and wherein said roller cam engages said top
side of said second conveyor belt above said gap, wherein said first and second loading
conveyors comprise respective first and second upstream rotary pulleys, said second pulley
being spaced rearwardly and upwardly from said first pulley, and wherein said roller cam is
20 forward of said second pulley, and wherein said roller cam is vertically aligned with said
first pulley to locate said gap at said first pulley and forward of said second pulley.

Claims 49-68 (canceled)

Claim 69 (currently amended): ~~The method according to claim 68~~ A method for loading an
elongated strand of food product of a given diameter on a transport conveyor, comprising
providing a first loading conveyor extending along a forward travel direction from an
upstream entrance end to a downstream exit end, providing a second loading conveyor
5 spaced above said first loading conveyor by a gap having a dimension less than or equal to
said given diameter, frictionally engaging said strand with both of said first and second
loading conveyors and pulling said strand into said gap and conveying said strand from said
upstream entrance end to said downstream exit end by an indexed drive, and discharging
said strand at said downstream exit end to said transport conveyor, and comprising
10 providing an entrance guide spaced upstream of said gap, and guiding said strand into said
gap through said entrance guide, and comprising providing said entrance guide as an idle
roller spaced rearwardly and downwardly of said upstream end of said first loading

conveyor, and feeding said strand upwardly to said idle roller and then upwardly and forwardly to said upstream end of said first loading conveyor.

Claim 70 (currently amended): ~~The method according to claim 68~~ A method for loading an elongated strand of food product of a given diameter on a transport conveyor, comprising providing a first loading conveyor extending along a forward travel direction from an upstream entrance end to a downstream exit end, providing a second loading conveyor
5 spaced above said first loading conveyor by a gap having a dimension less than or equal to said given diameter, frictionally engaging said strand with both of said first and second loading conveyors and pulling said strand into said gap and conveying said strand from said upstream entrance end to said downstream exit end by an indexed drive, and discharging said strand at said downstream exit end to said transport conveyor, and comprising
10 providing an entrance guide spaced upstream of said gap, and guiding said strand into said gap through said entrance guide, and comprising providing said entrance guide accessible to an operator at an operator loading station, providing said first and second loading conveyors with first and second rotary conveyor pulleys, providing a faceplate blocking access to said rotary conveyor pulleys from said operator loading station, providing said entrance guide as
15 an inlet through said faceplate, and feeding said strand through said inlet through said faceplate and into said gap.

Claim 71 (currently amended): ~~The method according to claim 68~~ A method for loading an elongated strand of food product of a given diameter on a transport conveyor, comprising providing a first loading conveyor extending along a forward travel direction from an upstream entrance end to a downstream exit end, providing a second loading conveyor
5 spaced above said first loading conveyor by a gap having a dimension less than or equal to said given diameter, frictionally engaging said strand with both of said first and second loading conveyors and pulling said strand into said gap and conveying said strand from said upstream entrance end to said downstream exit end by an indexed drive, and discharging said strand at said downstream exit end to said transport conveyor, and comprising

Appl. No. 10/672,642
Amendment dated April 15, 2005
Reply to Office action of March 9, 2005

- 10 providing an entrance guide spaced upstream of said gap, and guiding said strand into said
gap through said entrance guide, and comprising providing said entrance guide with a
combination of an inlet cone spaced rearwardly of said upstream end of said loading
conveyor and an idle roller spaced rearwardly and downwardly of said inlet cone, and
feeding said strand upwardly to said idle roller and then upwardly and forwardly to said inlet
15 cone and then forwardly to said upstream end of said loading conveyor.

Claims 72-77 (canceled)